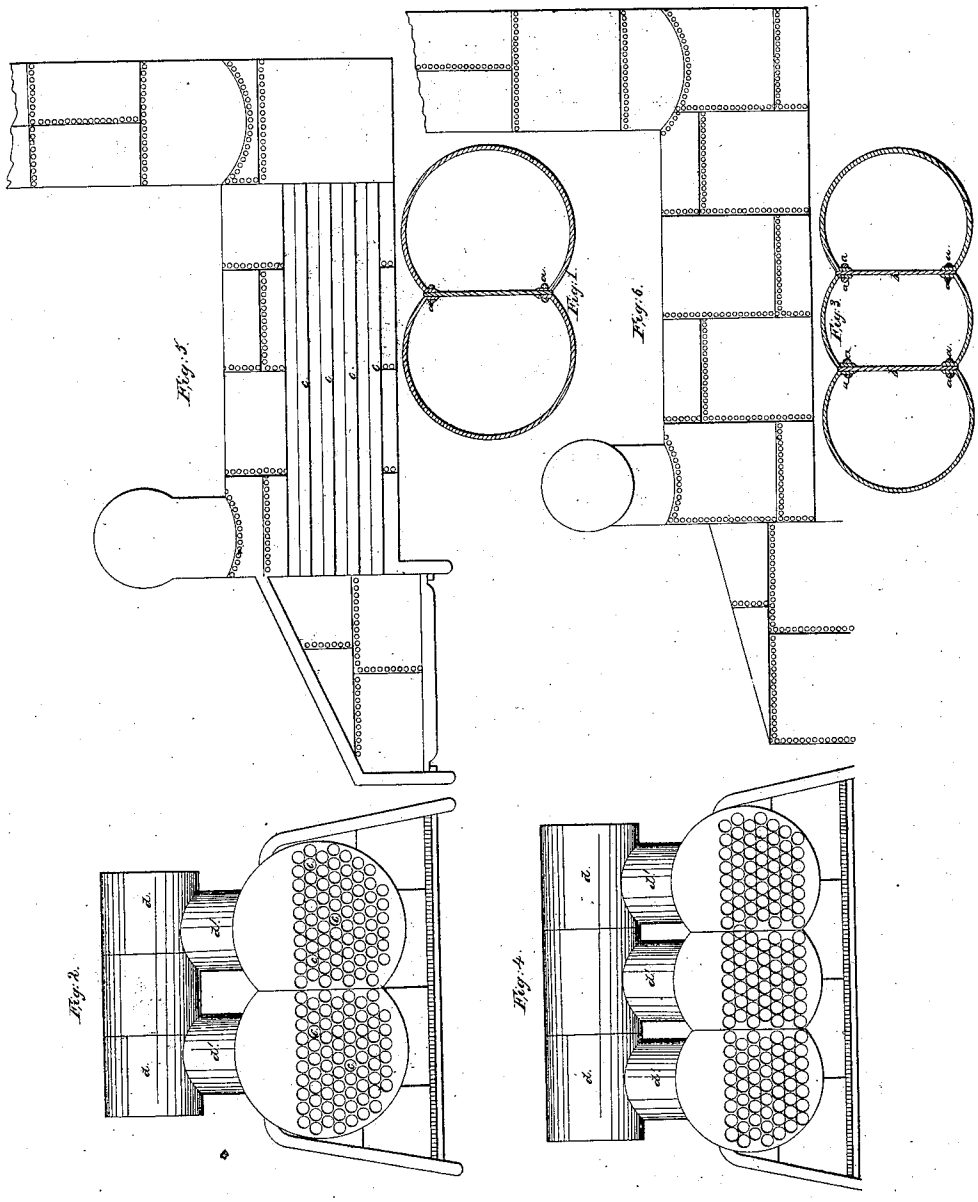
J. J. Rush,

Steam Boiler.

No. 221. Patented June 3, 1837.



UNITED STATES PATENT OFFICE.

JAS. J. RUSH, OF PHILADELPHIA, PENNSYLVANIA.

STEAM-BOILER FOR GENERATING STEAM FOR STEAM-ENGINES AND OTHER PURPOSES.

Specification of Letters Patent No. 221, dated June 3, 1837.

To all whom it may concern:

Be it known that I, JAMES J. RUSH, of the city of Philadelphia, in the State of Pennsylvania, have invented certain Improvements in Boilers for Generating Steam for the Working of Steam-Engines and for other Purposes; and I do hereby declare that the following is a full and exact description thereof.

The general principle upon which I construct my boilers is that of combining together two, three, or more, sections of cylinders in lieu of two or more perfect cylinders placed side by side, such sections of cylinders having tubes within them constructed and operating in the manner of those ordinarily used in locomotive steam engines.

In the accompanying drawings Figure 1 is a cross section of two such cylindrical sections united together by rivets or bolts *a*, *a*, and to the diaphragm or plate *b*, *b*, extending the whole length of the boilers. The cylindrical parts of such a boiler may be three feet six inches in diameter and their conjugate diameters six feet, more or less. Fig. 2 is an end view of such double boiler, showing the general mode of arranging the tubes *c*, *c*, *c;* in which arrangement there is not anything new. I intend, in general, to surmount these boilers by steam chambers *d'*, *d'*, *d*, *d*, as shown in the drawing, which steam chambers, however, I do not claim as constituting any part of my invention. Fig. 3 represents three sectional cylindrical boilers connected together in the same way with the former, the similar parts being designated by the same letters of reference; and Fig. 4 is an end view thereof. The drawings are made to a scale of one inch to a foot and these two last figures would, therefore, show a diameter of three feet in the cylindrical portions and a conjugate diameter of seven feet. Fig. 5 represents a longitudinal, vertical section of such a boiler, and Fig. 6 a side view thereof. The combining together of boilers consisting of sections of cylinders, as herein described, constitutes my first improvement.

My second improvement consists in the using of sheets of wove wire, or wire gauze, of a fine texture, similar to that employed in bolting machines, to prevent the rising of the water into the steam chamber and the consequent throwing of a quantity thereof into the cylinder intermingled with the steam. For this purpose I stretch sheets of wire gauze upon suitable frames, which frames are allowed to float upon the surface of the water in the boiler; or I stretch such sheets of wire gauze across the tubes *d'*, *d'*, which connect the boiler with *d*, *d;* or I place them in any other manner which convenience or the particular construction of the boiler may suggest, so that the sheet, or sheets, may be interposed between the water in the boiler and the steam chamber or reservoir; where it will have the effect of breaking the rising bubbles and of separating the water and steam from each other.

I am aware that wisps, or tangles, of wire have been placed in steam pipes with a view to the attaining of the end proposed by me, but my plan of interposing a sheet of wire gauze, just above the surface of the water, which I have found to answer the intended purpose in the most perfect manner is, as I believe, essentially new.

What I claim as constituting my improvements in boilers for the generating of steam is,

1. The combining together of two, three, or more boilers in cylindrical sections, in the manner or upon the principle herein fully set forth.

2. The placing of a sheet of wire gauze, or wove wire, at or near the surface of the water in steam boilers, substantially in the manner and for the purpose above made known and described.

JAMES J. RUSH.

Witnesses:
THOS. P. JONES,
CLEMENT T. FOOTE.